GOOZ, Lajos

Activities on the crude oil front. Foldr kozl 11 no.2:182-183 '63.

GOOZ, Lajos

On the world's oil export and import with emphasis on the Soviet Union. Foldr. kozl. 11 no.3:267-269 '63.

GOOZ, Lajos

    Helsinki, "the white city of the North." Elet tud 18 no.42:1326-
1331 20 0 '63.

SOKOLOV, Mstislav Leonidovich; GONYUSHIN, A.I., red.; BODANOVA,
A.P., tekhn. red.

[Surveying and planning in the reconstruction of mountain roads]
Izyskaniia i proektirovanie pri rekonstruktsii gornykh dorog.
Moskva, Avtotransizdat, 1963.  98 p.                    (MIRA 16:5)
        (Mountain roads)

SPIVAK, M.Ya.; ARGUDAYEVA, N.A.; NABIYEV, E.G.; CHISTOVICH, G.N.;
RIVLIN, M.I.; SEMENOV, M.Ya.; KRUGLIKOV, V.M.; SHAL'NEVA, A.M.;
TITROVA, A.I.; RAYKIS, B.N.; MILYAYEVA, Ye.N.; BRUDNAYA, E.I.;
GODINA, I.F.; VOL'FSON, G.I.; SOSONKO, S.M.; KOLESINSKAYA, L.A.;
VYSOTSKIY, B.V.; MALYKH, F.S.; MIROTVORTSEV, Yu.I.; SYCHEVSKIY,
P.T.; GOPACHENKO, I.M.; KARPITSKAYA, V.M.; FETISOVA, I.A.;
MARTYNYUK, Yu.V.; EMDINA, I.A.

Annotations. Zhur. mikrobiol., epid. i immun. 40 no.3:128-131
Mr '63.                                        (MIRA 17:2)

1. Iz Kemerovskogo meditsinskogo instituta i Kemerovskoy
klinicheskoy bol'nitsy No.3 (for Spivak, Argudayeva). 2. Iz
Kazanskogo instituta usovershenstvovaniya vrachey imeni
Lenina (for Nabiyev). 3. Iz Leningradskogo kozhnogo dispansera
No. 1 (for Chistovich, Rivlin). 4. Iz Rostovskoy oblastnoy
sanitarno-epidemiologicheskoy stantsii (for Semenov). 5. Iz
Stavropol'skogo instituta vaktsin i syvorotok (for Kruglikov,
Shal'neva, Titrova, Raykis). 6. Iz Kuybyshevskogo instituta
epidemiologii, mikrobiologii i gigiyeny i TSentral'nogo insti-
tuta usovershenstvovaniya vrachey (for Milyayeva). 7. Iz
Vsesoyuznogo nauchno-issledovatel'skogo instituta zhelezno-
dorozhnoy gigiyeny Glavnogo sanitarnogo upravler'ya Minis-
terstva putey soobshcheniya i Detskoy polikliniki st. Lyublino

(Continued on next card)

SPEVAK, M.Ya.———— (continued)  Card 2.

Moskovskoy zheleznoy dorogi (for Brudnaya, Godina). 8. Iz
Vrachebno-sanitarnoy sluzhby Severnoy zheleznoy dorogi (for
Vol'fson, Sosonko, Kolesinskaya). 9. Iz Vladivostokskogo
instituta epidemiologii, mikrobiologii i gigiyeny i Primorskoy
krayevoy protivochumnoy stantsii (for Vysotskiy, Malykh,
Mirotvortsev, Sychevskiy, Gopachenko). 10. Iz Yaroslavskogo
meditsinskogo instituta (for Karpitskaya). 11. Iz Aralmorskoy
protivochumnoy stantsii (for Fetisova). 12. Iz L'vovskogo
instituta epidemiologii, mikrobiologii i gigiyeny (for Martynyuk,
Emdina).

TARASEVICH, I.V.; KULAGIN, S.M.; KUDRYASHOVA, N.I.; GOPACHENKO, I.M.; SOMOV, G.P.

Natural focus of tsutsugamushi fever. Zhur.mikrobiol.,epid. i immun.
41 no.5:19-24  My '64.
(MIRA 18:2)

1. Institut epidemiologii i mikrobiologii imeni Gamalei AMN SSSR
i Vladivostokskiy institut epidemiologii i mikrobiologii.

USSR/Human and Animal Physiology (Normal and Pathological).          T-10
               Nervous System. Pain.

Abs Jour    :  Ref Zhur - Biol., No 16, 1958, 75138

Author      :  Gedevanishvili, D.M., Gopadze, I.I.

Inst        :  Tibilissi Medical Institute.

Title       :  On the Problem of Cortical Representation of Pain Sense.

Orig Pub    :  Tr. Tbilissk. med. in-t, 1957, 14, 109-138.

Abstract    :  By combining the effect of a metronome and different tones
               with strong stimulation of a tooth with a faradic current,
               a conditioned defensive reflex was developed in cats ex-
               emplified by opening the mouth to meow or growl.  The au-
               thors observed such a reaction earlier during stimulation
               by electrical current of sections of the occipital lobe of
               the cerebral cortex.  After a bilateral destruction of de-
               termined sections of the cortex of the occipital area

Card 1/2

USSR/Human and Animal Physiology (Normal and Pathological).
               Nervous System. Pain.

Abs Jour    :  Ref Zhur - Biol., No 16, 1958, 75138

(area of 1 $cm^2$), the conditioned pain reflexes which were
developed disappeared, and now conditioned pain reflexes
were not developed further.  The authors consider that
the extirpated sections of the cortex were "the nucleus"
of pain analysors.  -- S.M. Dionesov.

Card 2/2

GOPADZE, N. N.; VENKVADZE, T. A.; GEDEVANISHVILI, D. M. (Tbilisi)

O vliyanii aminazina na vysshuyu nervnuyu deyatel'nost'

report submitted for the First Moscow Conference on Reticular Formation, Moscow, 22-26 March 1960.

GOPAK, A.K.; MILIRUD, B.T.

Operator P.O. Chopur's method for boiling first massecuite. Sakh. prom.
31 no.4:33-34 Ap '57.
(MIRA 10:6)

1. Shpolyanskiy sakharnyy zavod.
(Sugar industry)

GOPAK, A.K.

GOPAK, A.K.

(MIRA 11:1)

Scale trap. Sakh. prom. 31 no.12:47 D '57.

1. Shpolanskaya gruppovaya laboratoriya.
   (Sugar industry--Equipment and supplies)

KARTASHOV, A.K.; GOLOVNYAK, Yu.D.; GOPAK, A.K.

Effect of impure pond water used in diffusion on the techno-
logical indices of factory operation. Sakh.prom. 33 no.9:
11-14 S '59.                                   (MIRA 13:1)

1. TSentral'nyy nauchno-issledovatel'skiy institut sakharnoy
promyshlennosti (for Kartashov, Golovnyak). 2. Shpolyanskaya
gruppovaya laboratoriya (for Gopak).
       (Shpola--Sugar manufacture)  (Feed water--Purification)

SOKOLOV, G.A.; GOPAK, A.K.; SOKOLOVA, Ya.G.

Process conrol of massecuite cooking by means of a brasmoscope. (MIRA 13:12)
Sakh. prom. 34 no. 12:28-34 D '60.

1. Smelyanskoye Spetsial'noye konstruktorskoye byuro TSentral'-nogo nauchno-issledovatel'skogo instituta sakharnoy promyshlennosti (for Sokolov). 2. Shpolyanskaya gruppovaya laboratoriya (for Gopak). 3. Smelyanskiy sakharnyy zavod (for Sokolova).
(Sugar manufacture)

GOPAK, A.K.; PUSTOKHOD, G.P.

Effect of the temperature of defecation saturation and of the amount of added lime on the juice content after saturation during the processing of raw cane sugar. Sakh.prom.35 no.3:14-15 Mr '61.
(MIRA 14:3)

1. Shpolyanskaya gruppovaya laboratoriya.
(Sugar manufacture)

GOPAK, K. N.

GOPAK, K. N. - "Some problems of the dynamics of columnar drill tubing".
L'vov, 1955. Min Higher Education Ukrainian SSR. L'vov State U
imeni Ivan Franko. (Dissertation for the Degree of Candidate of
Physicochemical Science.)

SO:  Knizhnaya Letopis', No. 43, 22 October 1955.  Moscow

SOV/179-59-4-27/40

24(6)

AUTHORS:     Gopak, K. N., Krivosheyeva, S. G., (Dnepropetrovsk)

TITLE:       Bending Torsional Vibrations and Stability of the Plane Bending
             Form of a Supporting Bar Fixed at One Side

PERIODICAL:

ABSTRACT:    This investigation concerns the dynamic stability of the plane
             bending form of a supporting bar fixed at one side which is
             strained by pure bending in the plane with the maximum bending
             resistance by the "follow-up" moment. As was also mentioned by
             Ye. L. Nikolai (Ref 1), the static method by Euler cannot be
             applied to this problem, and the critical load is determined here
             by means of the dynamic method. There are 1 figure, 1 table, and
             5 references, 4 of which are Soviet.

SUBMITTED:   March 2o, 1958

Card 1/1

GOPAK, K.N. (Dnepropetrovsk)

Loss of stability by a free rod moving under the action of a
follow-up force. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr.
no.4:136-137  Jl-Ag '60.                                (MIRA 13:8)
            (Mechanical movements)

GOPANENKO, V.M.; GOLOSHCHAPOV, I.A.; STARCHENKOV, V.M.; KOZHUKHOVSKIY, A.;
    BELOV, V.V., veterin.vrach

Intraperitonial injection of the solution of drug mixtures into calves
during dyspepsia. Veterinariia 41 no.3:56-59 Mr '64.

1. Glavnyy veterinarnyy vrach sovkhoza "Vpered", Moskovskaya obl. (for
Gopanenko). 2. Glavnyy veterinarnyy vrach Yefremovskogo proizvodstven-
nogo upravleniya Tul'skoy oblasti (for Goloshchapov). 3. Zaveduyushchiy
veterinarnoy laboratoriyey Yefremovskogo proizvodstvennogo upravleniya
Tul'skoy oblasti (for Starchenkov). 4. Glavnyy zootekhnik Yefremovskogo
proizvodstvennogo upravleniya Tul'skoy oblasti (for Kozhukhovskiy).
5. Sovkhoz "Tucha", Minskaya oblast' (for Belov).

81461

SOV/35-59-8-6341

3. 1720

Translation from:  Referativnyy zhurnal, Astronomiya i Geodeziya, 1959,
Nr 8, p 35

AUTHORS:       Moiseyev, I.G., Gopasyuk, S.I.

TITLE:         On the Correlation of Solar Sporadic Radio-Frequency Emission
               at the 1.5-m Wavelength With Visually-Observed Processes on
               the Sun

PERIODICAL:    Izv. Krymsk. astrofiz. observ., 1957, Vol 17, pp 211 - 218
               (Engl. summary)

ABSTRACT:      Bursts of sporadic radio-frequency emission of the Sun at a
               wavelength of 1.5 m were correlated with rapidly varying visual
               phenomena on the Sun, on the basis of observational data of
               1955.  It is presumed that, on one hand, apparently every
               visually-observed phenomenon is accompanied by radio-frequency
               emission, and on the other hand, most of the "events" in the
               radio emission of the Sun is connected with the visual pheno-
               mena.  A drop in intensity of radio emission bursts from the
Card 1/2       center of the Sun's disk to its periphery was determined, and,

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On the Correlation of Solar Sporadic Radio-Frequency Emission at the 1.5-m
Wavelength With Visually-Observed Processes on the Sun

from the course of this drop, the conclusion was drawn that it had been
caused by absorption in the corona. The authors set forth their considera-
tions as to the level of occurrence of 1.5-m radio emission bursts; they
presume that the bursts of radio-frequency emission studied are generated
by plasma oscillations in the condensations of the corona.

Authors' summary

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SOV/169-59-3-3000

Translation from:   Referativnyy zhurnal, Geofizika, 1959, Nr 3, p 139 (USSR)

AUTHOR:       Gopasyuk, S.I.

TITLE:        On the Motions in the Sun Flare on August 31, 1956

PERIODICAL:   Izv. Krymsk. astrofiz. observ., 1958, Vol 19, pp 100 - 104
              (Engl. Res.)

ABSTRACT:     A motion of the entire front having a sharply expressed periphery
              was observed in the flare recorded on August 31, 1956, from
              15.30 to 17.00 hours Moscow time.  One of the sections of this
              front was studied.  The results obtained lead to the conclusion
              that motions analogous to shock waves exist in sun flares.

                                                Author's résumé

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35078
S/712/60/023/000/012/014
D218/D301

$3,1540$ (also $1137$)

AUTHOR:     Gopasyuk, S. I.

TITLE:      A study of chromospheric flares after the flash phase

SOURCE:     Akademiya nauk SSSR. Krymskaya astrofizicheskaya obser-
            vatoriya. Izvestiya, v. 23, Moscow, 1960, 331-340

TEXT:  Experimental and theoretical studies at the Crimean Astro-
physical Observatory indicate that at least in the flash phase
there is a considerable release to energy, and the development of
the flare itself is so intensive that the flare can to some extent
be looked upon as an explosion. In order to investigate this pro-
blem the author carried out continuous motion-picture photography
of flares in the $H_\alpha$ line, using the $K\Gamma$-$1$ (KG-1) coronagraph. These
$H_\alpha$ studies indicate that, at least in the initial stage of their
development, the flares resemble explosions with cylindrical sym-     $\forall$
metry. Using L. I. Sedov's theory of shock waves it is estimated
that, for example, the lower limit of the energy released in the

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A study of chromospheric ...

S/712/60/023/000/012/014
D218/D301

flare of August 31, 1956, is $1.64 \times 10^{27} - 1.64 \times 10^{28}$ erg. This is the energy taken up in the formation of the shock wave. From this, the temperature as a function of distance from the axis of the hypothetical cylinder was estimated as $T_2 = 5.6 \times 10^{20}/r_2^2$. This formula cannot be used at short distances because as $r_2$ tends to zero, $T_2$ tends to infinity. The temperature at the center is estimated to be $5.6 \times 10^6$ °K. Rocket studies are consistent with these results. Studies of the motion of bright surges, eruptive filaments and prominences, lead to the conclusion that the ejection of matter occurs practically instantaneously, and therefore the impulse acting on the material is very large. This phenomenon is analogous to the plasmoids observed under laboratory conditions in pulsed discharges. Acknowledgments are expressed to A. B. Severnyy, Corresponding Member AS USSR, for advice. There are 6 figures, 2 tables and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: H.

Card 2/3

A study of chromospheric ...

S/712/60/023/000/012/014
D218/D301

Friedman, T. Chubb, T. Kupperian and T. Lindsay, IGY Project,
1957.

SUBMITTED: May 13, 1959

Card 3/3

41281
S/035/62/000/010/030/128
A001/A101

AUTHOR:       Gopasyuk, S. I.

TITLE:        On the influence of a magnetic field on movements in chromospheric
              flares

PERIODICAL:   Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 50,
              abstract 10A355 ("Izv. Krymsk. astrofiz. observ.", 1961, v. 25,
              114 - 121, English summary)

TEXT:         The author analyzes movements in flares relative to the longitu-
dinal component of the photospheric magnetic field on the basis of 1957 - 1959
data. Records of the magnetic field were made, as a rule, during flares or im-
mediately afterwards in the line $\lambda$ 4886.3 by means of a magnetograph, and film-
ing of flares in the H$\alpha$ line rays was made with a KГ -1 (KG-1). The following
conclusions have been drawn from the analysis: 1) The origination and develop-
ment of flares is connected closely with a magnetic field; 2) in the initial
stage of development of a flare knot, its expansion does not depend on orien-
tation of a magnetic field; 3) the next stage in development of the knot is

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On the influence of a magnetic field on...

S/035/62/000/010/030/128
A001/A101

characterized by two types of movements: a) oriented movements proceeding along the zero line of the magnetic field, and b) oriented movements proceeding as a wide front in the region of the magnetic field of one polarity; 4) the glow is brighter and remains longer at that edge of the knot towards which proceeds the movement; 5) rather often, flare knots are displaced as a whole over the solar surface. There are 10 references.

From author's summary

[Abstracter's note: Complete translation]

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20878

S/033/61/038/002/001/011
E032/E514

3,1540 (1062, 1128, 1184)

AUTHOR:    Gopasyuk, S. I.

TITLE:    A Study of Variations in the Magnetic Field and Sunspot
Group Configurations in Connection with Solar Flares and
the Determination of their Total Energy

PERIODICAL: Astronomicheskiy zhurnal, 1961, Vol.38, No.2, pp.209-
217

TEXT:    A systematic recording of the magnetic fields of active
regions on the Sun has been carried out at the Crimean Astro-
physical Observatory AS USSR (using $H_\alpha$ and 4886.3 FeI).   These
recordings were then used to deduce the detailed distribution of
the radial component of the magnetic field.   A characteristic
feature of these distributions is the presence of isolated maxima
(magnetic "hills"), which are associated with visible and
invisible (in integral light) sunspots.    An attempt was made to
establish whether these "hills" are displaced during flares.
Detailed analysis of the data obtained between 1957 and 1959
showed that both the "hills" and the sunspots are shifted during a
flare.   The beginning of the shift coincides to within 5 min with
the onset of flare development.   The magnitude of the shift varies

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A Study of Variations in the ...       S/033/61/038/002/001/011
                                       E032/E514

20878

from case to case and often reaches 20 000 km.     A typical example
is shown in Fig.5, which is concerned with a 1+ flare (August 16,
1960).   This figure shows the sunspots before and after the flare
(continuous and dashed lines).   The region of the flare is shaded.
The arrows indicate the direction and magnitude of displacement of
the spots.   The maximum displacement of the spot marked "a" was
12".   The other spots are displaced through a smaller distance
and the largest ones remained stationary.   The time interval in
Fig.5 was 4h 27m.   An example of the displacement of the magnetic
field "hills" associated with a 3+ flare (July 14, 1959) is shown
in Fig.1a (time interval 1 h).   The initial and final positions
are connected by arrows, the length of which is a measure of the
magnitude of the displacement.   The numbers marked on the figure
represent the magnetic field on the isogauss surrounding the "hill"
and the letters  N  and  S  indicate the polarity.   Assuming
that the shift of the "hills" and sunspots towards the flares is
associated with compression, due to the transformation of magnetic
energy into thermal energy of the flare and the emission of energy,
the energy of a flare is estimated to be of the order of $10^{32}$ erg.

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In this calculation it is assumed that the pressure is $10^4$ bar (this is equivalent to an average field in the region of 500 gauss), the initial dimension of the region (in the form of a cylinder) is $r = 4 \times 10^9$ cm, the depth of the region $h \cong 5 \times 10^8$ cm and the average displacement $\Delta r \cong 10^9$ cm. The above estimate is of the same order as the energy carried by cosmic rays associated with flares. Thus, it appears that the magnetic field is reduced during a flare, confirming the result obtained by A. B. Severnyy (Ref.4). There are 5 figures, 1 table and 6 references: 5 Soviet and 1 non-Soviet.

ASSOCIATION:    Krymskaya astrofizicheskaya observatoriya Akademii nauk SSSR (Crimean Astrophysical Observatory Academy of Sciences USSR)

SUBMITTED:    December 13, 1960

Card 3/3

S/712/62/027/000/005/015
A001/A101

AUTHOR:     Gopasyuk, S. I.

TITLE:      The motion of sunspots related to solar flares and the possible
            nature of energy outlet from flare regions

SOURCE:     Akademiya nauk SSSR. Krymskaya astrofizicheskaya observatoriya.
            Izvestiya.  v. 27, 1962, 110 - 119

TEXT:       The purpose of the present work was the study of sunspot motion in
an active region.  It was accomplished by systematic photography of the Sun in
integrated light with a chromospheric-photospheric telescope  AФP-2 (AFR-2) and
a tower solar telescope with 12-m focus.  The article contains the data of pro-
cessing three flares in 1960 of classes from 1 to 2+.  It was established that
1) sunspots during their origination and development, are displaced toward the
flare knots;  2) the commencement of flare development and the beginning of the
sunspot motion coincide within +5 min;  3) the motion of sunspots lasts for 2 -
3 hours after the termination of the flare in $H_{\alpha}$ and has in all probability a
pulsation-translational nature.  The amplitude of pulsation increases with the
flare class.  The author analyzes the problem of magnetic energy conversion into

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The motion of sunspots related to...      S/712/62/027/000/005/015
                                          A001/A101

internal energy of the gas, and comes to the conclusion that the volume de-
creases by a smaller amount in comparison with the observed magnitude (of the
order of $8 \times 10^8$ cm). Therefore there is another reason for the mutual approach-
ing of sunspots, and this reason is assumed to be the energy outlet from the
flare region, in the form of cosmic rays, plasma and magnetic field. In the
first stage, i.e., during the flare, the main part of energy is carried away by
cosmic rays, and in the second stage, i.e. after the flare in $H_\alpha$ and up to the
end of sunspot motion, the energy carried away by the "cold" plasma and magnetic
field is prevailing. Moreover, ionization losses of cosmic rays are sufficient
to explain energetically the observed emission of the flare in $H_\alpha$ and in the
other spectral lines. There are 5 figures.

SUBMITTED:   February 1961

Card 2/2

S/712/62/028/000/008/020
E032/E314

AUTHORS:      Stepanov, V.Ye. and Gopasyuk, S.I.

TITLE:        The structure of magnetic fields in active solar
              systems

SOURCE:       Akademiya nauk SSSR. Krymskaya astrofizicheskaya
              observatoriya. Izvestiya. v. 28. 1962. 194 - 223

TEXT:         The transverse and longitudinal components of the
magnetic field were investigated for an active solar region,
using the method described in a previous paper (Stepanov and
Severnyy, present issue, p. 166)  The magnetic field was recorded
using the Fe $\lambda 5250$ Å line (splitting factor 0.3/1), for which
calibration charts were available so that the absolute magnitude
of  H  and its angle to the line of sight could easily be deter-
mined.  The active regions was followed for 8 days (September
1-8, 1961).  Charts showing the magnitude of the field and its
orientation are reproduced.  Analysis of the charts showed that
in sunspot regions the average transverse field was higher than
the average longitudinal field by a factor of 2.3.  This factor
became 1.6 and 1.7 in the penumbra and umbra, respectively.  The
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The structure of ....                    S/712/62/028/000/008/020
                                         E032/E314

recorded distributions show that the structure of the magnetic
field at the level of the photosphere in the multi-centre sunspot
group resembles, in general, a dipole interaction pattern.
However, when the distance between the sunspot umbras increases,
an eddy structure appears in the penumbral region and its vicinity.
This is due to the appearance of a finite azimuthal field
component.  The direction of the azimuthal field for the leader
of the group was clockwise.  The variation in the magnitude of the
field vector for the leader of the group is found to be in
excellent agreement with previous work (A.P. Severnyy - Izv.
Krymskoy astrofiz. obs., 22, 12, 1960).  The field falls off most
rapidly in the penumbral region.  The magnitude of the field at
the penumbra-photosphere boundary is 500 Oe, while the angle
between the field and the line of sight increases from zero at the
centre of the spot to 60° at the above boundary.  It then falls
off slowly with increasing distance.  Fig. 13 shows the variation
in the field components with distance (in units of 500 km) for the
leader of the group on April 5, 1961.  A study of the bipolar
structure of the umbra of the follower revealed the presence of
strong azimuthal field components in neighbouring umbras.  The
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azimuthal component $H_\varphi$ reaches its maximum on the $H_{||} = 0$.
The maximum value is equal to the value of $H_{||}$ near the centre
of the main umbra. The lines of force are parallel to the $H_{||} = 0$
line and characterize the direction of the azimuthal component of
the transverse field. The variation of $H_{||}$ and $H_\varphi$ with distance
is similar to their distribution in a force-free field with
cylindrical symmetry if it is assumed that the azimuthal components
of two force-free fields of regions of different polarity can be
added. An estimate is made of the conductivity coefficients for
the partially ionized gas in the umbra and the neighbouring photo-
sphere, using the magnetic-field data. The values of $\lambda_0$, $\lambda_1$, $\lambda_2$
and $\lambda_3$ for the umbra are $10^{12}$, $6 \times 10^9$, $10^{10}$ and $4 \times 10^{10}$ e.s.u.,
while the results for the photosphere are $2 \times 10^{12}$, $9 \times 10^{11}$,
$8.5 \times 10^{11}$ and $2 \times 10^{12}$, where $\lambda_0$ is the conductivity along the
field direction, $\lambda_1$ is the conductivity in the direction perpen-
dicular to the field, $\lambda_2$ is the Hall conductivity and $\lambda_3$ is

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The structure of ....

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the conductivity associated with Joule losses. It turns out that the conditions existing at the sunspot umbra are favourable for the existence of near-force-free fields. There are 17 figures and 3 tables.
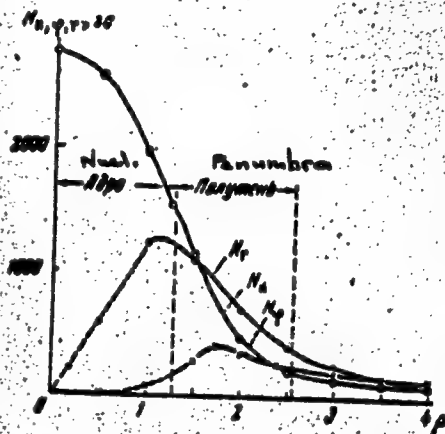
SUBMITTED:     December 22, 1961

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Fig. 13:

ACCESSION NR: AP4007597                              S/0214/63/000/004/0077/0081

AUTHORS: Gopasyuk, S. I.; Ogir', M. B.; Tsap, T. T.

TITLE: On the relationship between photospheric and chromospheric processes in the active region during flares

SOURCE: Solnechnyye dannyye, no. 4, 1963, 77-81

TOPIC TAGS: photospheric process, chromospheric process, flare, photoheliogram, sunspot umbra, sunspot penumbra, corona, magnetograph, active region

ABSTRACT: Sunspot activity and solar flares accompanied by particle emissions along radial lines have been carefully studied using motion pictures and photoheliograms. A superposition of the two has allowed investigation of detailed sunspot distributions. The data obtained have been used to calculate the total number of atoms in the active region of the chromosphere and in the whole solar corona. When these values are compared with the total number of atoms, the source of particle emission and strong flares is found to be in the photosphere. Furthermore, magnetograph records indicate an increase in radial velocity in photospheric levels during solar flares. It is shown that among the increased mass of ascending substances in the photosphere, sunspot displacement, particle surges in

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ACCESSION NR: AP4007597

the chromosphere above the sunspots during solar flares, and the solar flares themselves, there exists a very intimate relationship. All these phenomena are then assumed to be due to a single primary process occurring, in all probability, within or immediately below the photosphere. Orig. art. has: 3 figures.

ASSOCIATION: Krymskaya astrofizicheskaya observatoriya (Crimean Astrophysical Observatory)

SUBMITTED: 00                DATE ACQ: 21Jan64                ENCL: 00

SUB CODE: AS                 NO REF SOV: 004                  OTHER: 000

Card 2/2

GOPASYUK, S.I.; OGIR', M.B.; SEVERNYY, A.B.; SHAPOSHNIKOVA, Ye.F.

Structure of solar magnetic fields and its variations in flare
regions.  Izv. Krym. astrofiz. obser.  29:15-67  '63.   (MIRA 16:10)

Author(s): Vasil'ev, R. S. ?, Ogir', M. B., Tsap, T. T.

Characteristics of active regions on the sun during flares

Krymsk. astrofiz. observ.

... examining solar flares ...

... rings alternately). For several of these pairs there were several series of ... variation in the level of the ... layers of ...

ACC NR: AR4040396

at the maximum development of a flare its brightness in the blue wing is greater than in the red wing; after the maximum — vice versa. 5) There is a close correlation between the increase in the mass of ascending matter in the photosphere

Bibliography with 29 items. Authors' summary.

SUB CODE: AA          ENCL: 00

ACCESSION NR: AR4021616                    S/0269/64/000/002/0058/0058

SOURCE: RZh. Astronomiya, Abs. 2.51.415

AUTHOR: Gopasyuk, S. I.; Ogir', M. B.

TITLE: The relationship between solar surges and flares

CITED SOURCE: Izv. Kry*msk. astrofiz. observ., v. 30, 1963, 185-199

TOPIC TAGS: sun, solar activity, surge, flare, solar surge, solar flare, sunspot, solar magnetic field, photoheliogram

TRANSLATION: A study was made of 330 flares on the solar disk and 188 flares at the solar limb on the basis of observations made with a coronagraph at the Crimean Astrophysical Observatory at the center of the Hɑ Line during the period 1957-1962. The relationship between surges and flares was studied. The site of occurrence of surges relative to spots was determined on the basis of a joint study of films and photoheliograms. The following conclusions were drawn: 1. All flares are accompanied by surges. 2. The occurrence of an absorption surge is associated

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ACCESSION NR: AR4021616

both with the development of the flare itself (even a microflare) and with a re-
peated intensification of brightness or with the development of a new condensa-
tion. 3. The ejection of matter (absorption surges) occurs during the entire
lifetime of the flare. 4. Absorption surges erupt from spots and move along the
magnetic field. Bibliography of 18 titles. Author's abstract.

DATE ACQ: 09Mar64          SUB CODE: AS                    ENCL: 00

Card 2/2

L 32102-55    ERT(I)/EWT(v)/EWG-4/EEC(t)    RM-3/Pg-4    GW

ACCESSION NR:    AR5005740                                          8/0169/64/000/012/A012/A012

Ref zh. Geofiz., Abs. 12A72

Oopesyuk, S. I.

L 06354-67    EWT(1)    GW

ACC NR:    AR6013401                              SOURCE CODE:    UR/0269/65/000/011/0048/0048

AUTHOR:    Gopasyuk, S. I.

TITLE:  Time variations of the transverse magnetic field structure in spot groups and the optical appearances

SOURCE:  Ref. zh. Astronomiya, Abs. 11.51.419

REF SOURCE:  Izv. Krymsk. astrofiz. observ., v. 33, 1965, 100-110

TOPIC TAGS:  sun spot, solar magnetic field, transverse magnetic field

ABSTRACT:  A complicated study of the transverse magnetic field structure, photoheliograms, and Hα-movie films for two spot groups (2—8 September 1961 and 11—13 July 1962) is presented.  The causes of the formation of a strongly twisted field for the lead spot of the first group and for a large unipolar spot in the second are discussed.  Two possible explanations for such a field were considered earlier by the author and V. Ye. Stepanov (RZhAstr, 1963, 4.51.425):  1) twisting of the lines of force under the action of Coriolis forces for radial effluent, 2) forceless structure of the spot magnetic field.  The author indicates a third which, in his opinion, is a more realtistic cause of the twisting of lines of force — rotation of the spot as a whole should, under the freezing condition, lead to twisting of the lines of force.  The following properties are noted, which confirm this hypothesis:

Card 1/2                                                        UDC:  523.745

L 06354-67

ACC NR: AR6013401                                                                          $\sigma$

1) the magnetic field of the spot is twisted in the opposite sense with respect to the rotation of the spot; 2) the twisting occurs more rapidly, the more rapid the spot rotation; 3) the twist is greatest for the greatest angle of rotation; 4) the spiral slope increases with distance from the boundary of the nucleus, i.e., the weak fields are twisted more strongly. It is noted that the curve of the relative daily distribution of spot emission is close to the curve of the relative change of spot rotation angle. The number of emissions increases with rapid spot rotations. A possible mechanism for the occurrence of emission is considered. It is shown that as a result of spot rotation instability of the "constriction" type can form, because of which acceleration of material with density $\rho \gtrsim 10^{-11}$ g/cm$^3$ to hundreds of kilometers per second is possible. Bibliography of 27 citations. V. Obridko /Translation of abstract/

SUB CODE: 03

Card 2/2 $n \, \xi \, \xi$

GOPASYUK, S. N.  and MOISEYEV, I. G.,

"A Comparison of the Sporadic 1.5 m radioemission of the Sun with Rapidly
Cha nging Processes on the.Sun,"

paper submitted for the Symposium on Radio Astronomy, 30 Jul - 6 Aug '58, Paris

GOPENGAUZ, I.Ye.; TIMAN, A.F.

The modulus of continuity of periodic functions with a given
modulus of smoothness. Usp.mat.nauk 12 no.3:291-294 My-Je '57.
(MIRA 10:10)

(Functions, Periodic)

*GOPENGAUZ, I.E.*

ABSTRACT:   In his paper on "An Integral and Trigonometrical Series" (1951)
            N.N.LUZIN raised the following problem: $f(x)$ denotes a continuous
            function; $f_n(x)$ denotes its n-th approximation. At certain points

            this approximation is very close and in other points it is only
            remote. The problem arises whether the measure of the point set of
            the latter type of points equals zero. Everything, of course, depends
            in this case on the laws of the approximation. Trigonometric or
            TSCHEBYSCHEFF's approximations are the most interesting.
            The problem may also be put as foolows: Is there a measure of the set
            $M_n$ for any function $f(x)$ which is continuous in $[a,b]$, which is

            equal to zero in the case of all sufficiently great n? In the case
            of the class of functions which are continuous in a half-open inter-
            val the answer must be negative. A.F.TIMAN, in his lectures at the
            University of Djnepropetrowsk, supposed the answer to be negative
            also in the case of functions $f(x)$ which are continuous in a closed
            interval. On this occasion the measure of the set $M_n$ tends towards
            zero, if $n \to \infty$. The results obtained from the present paper confirm

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On a Problem by N.N.LUZIN.                                    PA - 2903

this assumption. Further, three theorems are given and proved:

<u>Theorem 1</u>: There exists a function $F(x)$ continuous in $[a,b]$ and an infinite series of natural numbers $n_k$ ($k = 0,1,\ldots;$ $n_0$   $n_1$   $\ldots$) in such a way that the inequality $\text{mes}M_{n_k}(F) > 0$ holds for arbitrary k. Here $f(x)$ denotes a function continuous in $[a,b]$, $P_n(f;x)$ the polynomical with an order $< n$ which deviates as little as possible from $f(x)$ in this section, $M_n(f)$ the set of such points of the given section where $E_n(f) = |f(x) - P_n(f;x)|$ applies. In addition $E_n(f) = \max\limits_{a \leq x \leq b} |f(x) - P_n(f;x)|$ holds good.

<u>Theorem 2</u>: There exists a function $F(x)$ continuous in $[0,2\pi]$ and an infinite series of numbers $n_k$ ($k = 0, 1, 2, \ldots;$ $n_0 < n_1 < n_2 < \ldots$) in such a way that the inequality $\text{mes}M_{n_k}(F)$ holds for arbitrary k. The quantities occurring in this theorem are defined. Finally a third theorem and three conclusions resulting therefrom are given.

Card 2/2

ASSOCIATION: State University of Djnepropetovsk
PRESENTED BY: A.N.KOLMOGOROV, Member of the Academy
SUBMITTED: 25.5.1956
AVAILABLE: Library of Congress

GOPENGAUZ, I. Ye, Cand Phys-Math Sci — (diss) "Concerning the Multiplicity of Points of Maximum Deviation," Dnepropetrovsk, 1960, 6 pp, 100 copies (Dnepropetrovsk State U. im 300th Anniversary of the Union of the Ukraine and Russian) (KL, 47/60, 97)

*16.4100*

AUTHOR:  *GOPENGAUZ, I.YE.*
Gopenhauz, I.Ye.

TITLE:  On sets of maximum deviation

PERIODICAL:  Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 10, 1960, 1327 - 1330

TEXT:  The author considers a sequence of continuous functions $\{f_n(x)\}_{n=0}^\infty$ which approach the function $f(x)$ continuously in $[a, b]$. $M_n(f)n$ denotes a set of maximum deviation, i.e. the aggregate of $x \in [a, b]$ for which the difference $f(x) - f_n(x)$ attains the maximum of its modulus. In the case of the best uniform approximations by algebraic or trigonometric polynomials, there exists a function $f(x)$ continuous on the segment, and such that the sets of maximum deviation have a positive Lebeg measure for any chosen n, and there exists a function $f(x)$ with these properties which correspond to the approximation to a Fourier series by partial sums. On this ba-sis, the author establishes the following results. Theorem 1:

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On sets of maximum deviation

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S/021/60/000/0$0/002/016
D251/D303

There exists a function $F(x)$ infinitely differentiable on the segment $[a, b]$ which is not an algebraic polynomial, for which mes $M_{n_k}$ $(F) > 0$ for an infinite sequence of numbers $n_k$ in the case of the best uniform approximation in algebraic polynomials. Theorem 2: There exists a function $F(x)$ of period $2\pi$, infinitely differentiable, and not a trigonometric polynomial, for which mes $M_{n_k}$ $(F) > 0$

for an infinite sequence of numbers $n_k$ in the case of the best uniform approximation in trigonometric polynomials. Theorem 3: There exists a function of period $2\pi$ which is infinitely differentiable and not a trigonometric polynomial, for which $M_{n_k}$ $(F) > 0$ for an in-

finite sequence of numbers $n_k$ in the case of the approximation to a Fourier series by means of partial sums. The case of approximations by means of interpolation polynomials with a matrix of nuclei of interpolation $t_k(n)$, $0 \leq k \leq n$, $n = 0, 1, \ldots$ is then con-

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On sets of maximum deviation

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sidered. In this case not even $M_n(f)$ always tends to zero. In this case, for every function continuous on $[a, b]$ and not an algebraic polynomial to be such that mes $M_n(f) \rightarrow 0$ as $n \rightarrow \infty$, it is necessary and sufficient that the aggregate of numbers $t_k^{(n_i)}$ is everywhere compact for an arbitrary infinite sequence. Theorem 4: For an arbitrary triangular matrix $t_k^{(n)}$ there exists a function $F(x)$, continuous on $[a, b]$ and not an algebraic polynomial for which mes $M_n(F) > 0$ for all n in the case of approximation by Lagrange polynomials $P_n(x)$ which interpolate functions in nucleus $t_n^{(k)}$. Theorem 5: For an arbitrary triangular matrix $t_k^{(n)}$ such that $a = t_0^{(n)} < t_n^{(k)} < t_n^{(n)} = b$, $0 < k < n$, $n \geqslant 1$, there exists a function $F(x)$ continuously differentiable on $[a, b]$ and not an algebraic polynomial, for which mes $M_n(F) > 0$ for all n in the case of approximation by the interpolation of Hermite polynomials with nu-

Card 3/6

On sets of maximum deviation ...

cleus $t_k^{(n)}$. If A is the triangular matrix $t_k^{(n)}$ ●$_k^{(n)} \leqslant$ b, $0 \leqslant k \leqslant n$
$n = 0, 1, 2, \ldots$, and $Q_n(f; x)$ is an algebraic polynomial of de-
gree not greater than $(n+1)(\mu+1) - 1$, which interpolates $f(x)$,
$f'(x) \ldots f^{(\mu)}(x)$ in the ●●● $t_k^{(n)}$ and $M_n(f)$ is the correspond-
ing set of maximum deviation, then Theorem 6: If A ● such that
for every function $f(x)$ which is infinitely differentialbe on
$[a, b]$ and for every p the inequality

$$\max_{a \leqslant x \leqslant b} /f(x) - Q_n(f; x)/ \leqslant \frac{C_p(f)}{n^p}, \quad n = 1, 2, \ldots,$$

holds, where $C_p(f)$ is a constant depending only on p and f, then
there exists a function $F(x)$ ●nfinitely differentiable on $(a, b)$
which is not an algebraic polynomial, for which mes $M_{nk}(F) > 0$ for
an infinite sequence $n_k$. If $\mu = 1$, it is sufficient to demand that

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On sets of maximum deviation

$$\sum_{i=0}^{n} \left| \frac{\ell_n(x)}{(x - t_i^{(n)})\ell_n'(t^{(n)})} \right| = O(n^\alpha), \text{ where } \ell_n(x) = (x - t_o^{(n)}) \ldots (x - t_n^{(n)}).$$

If $\mu = 2$ it is sufficient to demand that

$$\sum_{\gamma=0}^{n} \frac{\ell_n^2(x)}{(x - t^{(n)})^2 \ell_n'^2 (t^{(n)})} \left| \left[ 1 - \frac{\ell_n'(t^{(n)})}{\ell_n'(t^{(n)})}(x - t^{(n)}) \right| + |x - t^{(n)}| \right] = O(n^\alpha)$$

Both these conditions are satisfied by, e.g. Chebishev's matrix of nuclei

$$t_k^{(n)} = \cos \frac{2k + 1}{2(n + 1)} \pi, \quad k = 0, 1, \ldots, n.$$

In conclusion the author thanks O.F. Timan for his help and guidance. There are 2 Soviet-bloc references.

Card 5/6

On acts of maximum deviation

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S/021/60/000/010/002/016
D251/D303

ASSOCIATION: Dnipropetrovs'kyy derzhavnyy universytet (State University of Dnipropetrovs'k)

PRESENTED: by B.V. Hnyedenko, Academician AS UkrSSR

SUBMITTED: November 5, 1959

Card 6/6

GOPENGAUZ, I.Ye.; RABINOVICH, A.L.

One relation in the theory of uniform and integral approximations.
Ukr. mat. zhur. 12 no.3:339-341 '60.                    (MIRA 13:11)
               (Approximate computation)

68128

16(1) 16,4100                              S/038/60/024/01/006/006

AUTHORS:    Brudnyy, Yu.A., and Gopengauz, I.Ye.

TITLE:      On the Measure of the Set of Points of the Maximal Deviation

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960,
            Vol 24, Nr 1, pp 129-144 (USSR)

ABSTRACT:   Let Q be a set of finite measure and let $\left\{f_k(x)\right\}_0^\infty$ be a
            sequence of bounded functions measurable on Q, where the
            difference $f_k(x)-f_n(x)$, $n \neq k$, may assume every value only
            on a set of the measure zero.
            Theorem 1: If $M_n = \underset{x \in Q}{E} \left\{|f_n(x)| = R_n\right\}$, i.e. if $M_n$ is the set
            of points $x \in Q$ for which $|f_n(x)| = R_n$ $(R_n \geqslant 0)$, then
            $\lim_{n \to \infty} \text{mes } M_n = 0$.
            From the theorem there result some conclusions for approximat-
            ions by functions on the whole real axis, by rational fractions,
            by Fourier partial sums, and by polynomials with respect to
Card 1/3    Markov's systems of functions.

On the Measure of the Set of Points of     S/038/60/024/01/006/006
the Maximal Deviation

Let $f(x)$ be continuous on $[a,b]$; let $P_n(f;x)$ be an algebraic
polynomial of degree $\leq n$ deviating least from $f(x)$ on $[a,b]$,
$E_n(f) = \max\limits_{a \leq x \leq b} |f(x) - P_n(f,x)|$; let $M_n(f)$ be the set of points
$x \in [a,b]$ for which $E_n(f) = |f(x) - P_n(f;x)|$.

Theorem 2: There exists a function $F(x)$ continuous on $[a,b]$
and an infinite sequence of natural numbers $n_k$ $(k=0,1,\dots;$
$n_o < n_1 < \dots)$ so that for every $k$ it holds  mes $M_{n_k}(F) > 0$.

The problem Nr 28 of Luzin $\underline{/}$ Ref 1 $\underline{/}$ is answered negatively in

Theorem 3: In the case of uniform best approximations by
algebraic (trigonometric) polynomials there exists a function
$F(x)$ infinitely often differentiable on $[a,b]$ with the property
that mes $M_n(F) > 0$ holds for infinitely many numbers n.

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68128

On the Measure of the Set of Points of          S/038/60/024/01/006/006
the Maximal Deviation

Let $f(x)$ be continuous, $f(x+2\pi) = f(x)$; let $S_n(f;x)$ be the

partial sum of the Fouries series of $f(x)$; let $M_n(f)$ be the

set of those points $x \in [0,2\pi]$ for which $|f(x)-S_n(f;x)| =$

$= \max\limits_{t} |f(t)-S_n(f;t)|$.

Theorem 4: There exists a function $F(x)$ continuous on $[0,2\pi]$
and an infinite sequence of numbers $n_k$ $(k=0,1,2,\ldots,n_0 < n_1 < n_2 <..)$

so that mes $M_{n_k}(F) > 0$ for all k.

The authors mention N.N.Lusin, N.K.Bari, D.Ye.Men'shov, V.Ya.
Pan, S.N.Bernshteyn, and A.A.Markov. They thank A.F.Timan for
the theme and advices.

PRESENTED:  by S.L.Sobolev, Academician
SUBMITTED:  May 9, 1958


Card 3/3

16.6500

AUTHOR: Gopenganz, I. Ye.

TITLE: On the Deviation of the Functions From the Lagrange and Hermitean Interpolation Polynomials

TEXT: Let A be an arbitrary triangular matrix of numbers $t_k^{(n)} \in [a,b]$ ; $Q_n(f, A; x)$ the algebraic polynomial with degree $\le$ n which interpolates the function f(x) in the nodes $t_k^{(n)}$ which are formed by the n-th line of the matrix A. Let $G_n(f, A) = \max_{a \le x \le b} |Q_n(f; A; x) - f(x)|$ and $M_n(f, A)$ be the set of the points $x \in [a,b]$ in which it is

$$|Q_n(f, A; x) - f(x)| = G_n(f, A) .$$

Theorem 1 : For an arbitrary triangular matrix A of numbers $t_k^{(n)} \in [a,b]$ there exists a function F(x) continuous on [a,b] which is no algebraic polynomial and for which it is  mes $M_n(F; A) > 0$ for all n .

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On the Deviation of the Functions From the
Lagrange and Hermitean Interpolation Polynomials

Theorem 2 : An analogous statement in the case $t_o^{(n)} = a$ , $t_n^{(n)} = b$ for all

$n \geqslant 1$.
Let A be as in theorem 1. Let $Q_n(f,x)$ be the ordinary polynomial whose degree
is $\leqslant (n + 1)(\mu + 1) - 1$ and which interpolates the functions $f(x), f'(x), \ldots$
$f^{(\mu)}(x)$ in the nodes which are given by the n-th line of A; let $M_n(f)$ be

the corresponding set of points of maximum deviation.
Theorem 3 : If A is so that for every p and every function $f(x)$ infinitely
often differentiable on $[a,b]$ it holds

$$(11) \qquad \max_{a \leqslant x \leqslant b} |f(x) - Q_n(f; x)| \leqslant \frac{c_p(f)}{n^p} \quad , \quad n = 1,2,\ldots,$$

where $c_p(f)$ is a constant only depending on f and p, then there exists a
function $F(x)$ infinitely often differentiable on $[a,b]$ which is no algebraic
polynomial, and for which it is mes $M_n(F) > 0$ for infinitely many n .

Card 2/3

80209
S/038/60/024/02/07/007

On the Deviation of the Functions From the
Lagrange and Hermitean Interpolation Polynomials

The author mentions N.N. Luzin, N.K. Bari and D.Ye. Men'shov. He thanks
A.F. Timan for the subject.
There are 2 Soviet references.

PRESENTED:  by S.L. Sobolev, Academician

SUBMITTED:  February 12, 1959

Card 3/3

85230

$16.3000$

S/039/60/052/003/007/007
C 111/ C 333

AUTHORS: Brudnyy, Yu. A., Gopengauz, I. Ye. (Dnepropetrovsk)

TITLE: Generalization of a Theorem of Hardy and Littlewood

PERIODICAL: Matematicheskiy sbornik, 1960, Vol.52, No.3, pp.891-894

TEXT: The authors consider functions analytic in $|z| < 1$ and continuous in $|z| \leqq 1$. The modulus of continuity on the boundary is defined by

$$\omega(\delta, f) = \underset{|\theta_1 - \theta_2| \leqq \delta}{\text{l.u.b.}} \quad |f(e^{i\theta_1}) - f(e^{i\theta_2})|.$$

Generalizing a theorem of Hardy-Littlewood (Ref.1) and sharpening a result of Ya. L. Geronimus (Ref.2) the authors prove

Theorem 4: In order that the function $f(z)$ on the unit circle has the modulus of continuity $\omega(\delta, f) = O(\omega(\delta))$, it is necessary and if

(1) $\qquad \int^{1} \frac{\omega(t)}{t} dt = O(\omega(x))$

is satisfied, also sufficient that in $|z| < 1$ it holds

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S/039/60/052/003/007/007
C 111/ C 333

Generalization of a Theorem of Hardy and Littlewood

(2)   $|f'(z)| \leqq c \dfrac{\omega(1- |z| )}{1 - |z|}$ .

Theorem 5: If $f(z)$ possesses on the unit circle the modulus of continuity $\omega(\delta)$ which satisfies (1), then in $|z| \leq 1$ it holds the inequality

$$|f(z_1) - f(z_2)| \leqq c \,\omega( |z_1|-|z_2| ).$$

The authors thank A. F. Timan for the subject.

There are 2 references: 1 Soviet and 1 German.

[Abstracter's note: (Ref.2) is a paper of Ya. L. Geronimus in Matematicheskiy sbornik, 1956, Vol. 38, pp. 320-330].

SUBMITTED: April 19, 1959

Card 2/2

87143

16.4100   16.4200

AUTHORS:  Gopenganz, I.Ye., and Rabinovich, A.L.

TITLE:   On a Relation in the Theory of Uniform and Integral Approximations

PERIODICAL:  Ukrainskiy matematicheskiy zhurnal, 1960, Vol. 12, No. 3,
pp. 339 - 341

TEXT:  Let $W^{(r)}{}_{LK}$ be the class of those $f(x)$ , $f(x + 2\widetilde{\pi}) = f(x)$, having an absolutely continuous $f^{(r-1)}(x)$ and for which it holds $\| f^{(r)} \|_L =$

$= \int_0^{2\widetilde{\pi}} |f^{(r)}(x)|\, dx \leqslant K$ , $r = 1, 2, \dots$ . Let $W^{(r)}{}_{MK}$ be the class of those

$f(x)$ , $f(x + 2\widetilde{\pi}) = f(x)$ , having an absolutely continuous $f^{(r-1)}(x)$ and a bounded $f^{(r)}(x)$ , where $\| f^{(r)} \|_M = \text{vrai sup}_{0 \leq t \leq 2\widetilde{\pi}} |f^{(r)}(t)| \leq K$ . Let

$U_n (f ; \lambda) = U_n (f, x; \lambda) = \dfrac{a_0}{2} + \sum_{k=1}^{n} \lambda_k^{(n)} (a_k \cos kx + b_k \sin kx)$ ,

where $\lambda_k^{(n)}$ $(k = 0, 1, 2, \dots, n+1 ; \lambda_0^{(n)} = 1 , \lambda_{n+1}^{(n)} = 0)$ is a triangular

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67143

On a Relation in the Theory of Uniform and Integral Approximations

S/041/60/012/003/007/011
C111/C222

matrix ; $a_k$ , $b_k$ are Fourier coefficients of $f(x)$. Let

$$E_n \left(W^{(r)}_{LK} ; \lambda\right)_L = \sup_{f \in W^{(r)}_{LK}} \left\| f - U_n \left(f ; \lambda\right) \right\|_L$$

$$E_n \left(W^{(r)}_{MK} ; \lambda\right)_M = \sup_{f \in W^{(r)}_{MK}} \left\| f - U_n \left(f ; \lambda\right) \right\|_M$$

Let (2) $\mu_k^{(n)} \leq \mu_{k+1}^{(n)}$ , $\mu_k^{(n)} - 2\mu_{k+1}^{(n)} + \mu_{k+2}^{(n)} \geq 0$

where $\mu_k^{(n)} = \dfrac{1 - \lambda_k^{(n)}}{k^r}$ .

Theorem : If the matrix of the $\lambda_k^{(n)}$ satisfies the condition (2) then for all $r > 0$ and $n \to \infty$ there holds the following asymptotic relation uniformly with respect to the considered matrices :

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87143

On a Relation in the Theory of Uniform and
Integral Approximations

S/041/60/012/003/007/011
C111/C222

$$
\left.\begin{array}{l}
E_n \left( W^{(r)}{}_{LK} ; \lambda \right)_L \\
E_n \left( W^{(r)}{}_{MK} ; \lambda \right)_M
\end{array}\right\} = \frac{4K}{\pi^2} \left| \sum_{k=1}^{n} \frac{1 - \lambda_k^{(n)}}{k^r (n-k+1)} - \frac{\ln n}{n^r} \right| + O\left(\frac{1}{n^r}\right)
$$

The authors thank Professor A.F. Timan for the theme.
There are 3 Soviet references.

SUBMITTED:    May 26, 1958

Card 3/3

BRUDNYY, Yu.A.; GOPENGAUZ, I.Ye.

Approximation by piecewise polynomial functions. Dokl. AN SSSR 141
no.6:1283-1286 D '61.                                    (MIRA 14:12)

1. Konotopskiy obshchetekhnicheskiy fakul'tet Khar'kovskogo
gosudarstvennogo universiteta i Dnepropetrovskiy sel'skokhozyaystvennyy
institut. Predstavleno akademikom A.N.Kolmogorovym.
            (Polynomials) (Approximate computation)

BRUDNYY, Yu.A.; GOPENGAUZ, I.Ye.

Approximation by piecewise-polynomial functions.  Izv. AN SSSR.
Ser. mat. 27 no.4:723-746 Jl-Ag  '63.                (MIRA 16:8)

(Functions, Continuous)

SLOBODYAN, V.I., insh.; GOPENKO, S.V., insh.

Standard fittings for industry and shipbuilding.  Rech.transp.
18  no.11:39-40  N '59.                                    (MIRA 13:4)
    (Pipe fittings)

SLOBODYAN, V.I., insh.; GOPENKO, S.V., insh.

Standard pipeline fittings for industry and shipbuilding.
Sudostroenie 25 no.10:51-53 O '59.                    (MIRA 13:2)
          (Marine engineering) (Pipe fitting)

MARKHEL', Pavel Sil'vestrovich, kand. tekhn.nauk; SMELOV, Sergey
Vasil'yevich, master-konditer; MASLOV, Ivan Nikolayevich,
kand. tekhn. nauk; DANILEVSKAYA, Valentina Vladimirovna,
kand. tekhn. nauk; GOPENSHTEYN, Yuriy Lazarevich, inzh.;
VIDANOV, Konstantin Kharitonovich, inzh.; ZAPENINA, Nina
Vasil'yevna, kand. tekhn. nauk; SOKOLOVA, Nina Ivanovna,
tekhnolog; PRITYKINA, L.A., red.; KISINA, Ye.I., tekhn.red.

[Confectionery products made with flour] Muchnye konditer-
skie izdeliia. [By] P.S.Markhel i dr.  Moskva, Pishche-
promizdat. Pt.1.[Making of pastries, torten, cakes, oriental
and dietetic products] Proizvodstvo pirozhnykh, tortov, keksov,
vostochnykh i dieticheskikh izdelii. 1962.  679 p.
                                        (MIRA 16:7)
            (Baked products)

SCHWARTZE, P.; GÖPFERT, E.

Urethane induced changes of the electrical activity of rabbit
brain in postnatal development. Activ. nerv. sup. (Praha) 7
no.1:37-40 '65.

1. Physiologisches Institut der Karl-Marx-Universitat, Leipzig.

TOKAREVICH, K.N.; GOPINA, A.I.; POPOVA, Ye. M.; SILINA, N.I.

Outbreak of swamp fever of the Pomona type as a result of bathing. Trudy Len. inst. epid. i mikrobiol. 25:286-292 '63.

(MIRA 17:1)

1. Iz otdela osobo opasnykh infektsiy Leningradskogo insti-tuta epidemiologii i mikrobiologii imeni Pastera, Dorozhnoy sanitarno-epidemiologicheskoy stantsii Oktyabr'skoy zheleznoy dorogi i Dorozhnoy polikliniki g. Petrozavodska.

GOPIRIDZE, A. ZH

22745 Gopiridze, A. Zh. O Nevroticheskikh I Psikhonevroticheskikh
Reaktsiyakh Vogennogo I Poslevoye Nnogo Vremeni Trudy (Toilis.
Gos. Med. In-T), T. V, 1948, F. 270-78--Na Gruz. Yaz--Rezyume
Na Rus. Yaz

SO: Letopis', No. 30, 1949

GOPITKEVICH, M. P., SOBCHUK, B. A., IMENICH, M. I. (USSR)

"The Influence of ATP and Insuline on the Carbohydrate
Metabolism of Ehrlich ascite Cells and Nucleated
Erythrocytes (read by title)."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 August 1961

VASIL'YEV, I.V., inzh.; GOPIUS, A.D., tekhnik

Investigating antifriction properties of materials for sliding
bearings operating in an alkaline medium.  Trudy NIIKHIMMASH
no.27:120-126 '59.                                        (MIRA 14:8)
                        (Bearings (Machinery))

VASIL'YEV, I.V., inzh.; GOPIUS, A.D., tekhnik

Investigating antifriction properties of materials for sliding bearings operating in chloride solutions. Trudy NIIKHIMMASH no.27:137-141 '59. (MIRA 14:8)

(Bearings (Machinery))

L 24863-66    EWP(e)/EWT(m)/EWP(j)/T/ETC(m)-6    IJP(c)    WW/DJ/GS/RM/WH

ACC NR:  AT6008950    (A)    SOURCE CODE:  UR/0000/65/000/000/0107/0112

AUTHORS: Vinogradov, Yu. M.; Vasil'yev, I. V.; Gopius, A. D.; Brusnichkin, N. S.

ORG:  none

TITLE:  The use of antifriction plastics for slip bearings in chemical machine building

SOURCE:  Moscow. Institut mashinovedeniya. Plastmassy v podshipnikakh skol'zheniya; issledovaniya, opyt primeneniya (Plastics in friction bearings; research and experiment in application). Moscow, Izd-vo Nauka, 1965, 107-112

TOPIC TAGS:  friction coefficient, wear resistance, antifriction material, antifriction bearing, steel, teflon, polyamide / Kh23N27M2T steel

ABSTRACT:  Teflon-4 and teflon-40 (with and without fillers), pyroceramic plastics, polyamides, textolites, fiber plastics, and graphite plastics are examined as the currently most promising antifriction materials for chemical machine building. The use of the Kh2M, MT-2, MT2M, and MT-8M friction machines is discussed. The Kh2M is very convenient for laboratory research in aqueous solutions of bases, acids, and salts. The other machines permit the determination of the

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ACC NR: AT6008950                                                                    2

dependence of wear resistance and the friction coefficient upon various factors
studied. The life of a bearing assembly was increased to 8000—10 000 hrs by
the use of teflon-40. Teflon-4 is found to be unsuitable for use in certain
media. In view of the higher chemical stability of teflon-4 and of its good
antifriction qualities, work should be continued in creating its compositions
with other materials. Orig. art. has: 1 table and 1 diagram.

SUB CODE: 11/ SUBM DATE: 31Jul65

Card 2/2 dda

GOPIUS, A·Ye

*Investigation of Corrosion-Resistant Alloys for Radiator Tubes. A. K. Gopius, *Tsvetnye Metally* (*Non-Ferrous Metals*), 1937, (1), 88–93). —[In Russian.] The materials studied were: copper; 68:32 brass; aluminium bronzes with 1·88, 3·2, 4·19, and 5·36% aluminium; 80:20 brass in which 0·94, 1·84, and 2·97% aluminium, or 2·96% aluminium, 3·0% silicon, and 0·83% manganese, replaced the corresponding amount of copper; and 5:5:(81)aluminium-nickel-copper alloy. Radiator tubes of these materials were tested for corrosion: (a) in water at 80°C., (b) in moist air, and (c) in sea water (intermittent immersion). The tendency of the tubes to crack after various methods of annealing was also studied. Aluminium increases the resistance to corrosion by hot water. Silicon-manganese-bronze is stable in hot water. The weight and appearance of all the tubes remained unchanged after exposure to moist air for 3 months. The aluminium-brasses showed the best resistance to sea-water. Silicon-manganese bronze and pure copper had the least tendency to crack on annealing. Increasing the aluminium content of the bronzes increased their tendency to crack. This effect was still more marked in the brasses.—N. A.

GOPIUS, A.Ye.

*"The Corrosion of Non-Ferrous Metals. A. E. Gopius (Trudy Tsentral. Gosudarst. Nauch.-Issledovatel. Inst., Sbornik Rabot Metalloobrabotke i Splavam 1930 1934, 1937, 270-288; Chem. Zentr., 1939, 110, (I), 4114). (In Russian.) The effect of additions on the corrosion of lead in sulphuric-acid manufacture was studied. Pure lead is most stable in the Glover tower and most resistant to nitrosyl-sulphuric acid solution and the chamber gases. Lead with 0.1 0.2% copper is most resistant to the bottom acids of the 2nd and 3rd chambers, and lead containing antimony is most resistant to the bottom acid of

the 1st chamber and to the gases of the 4th tower. Other investigations included the effect of additions on the corrosion-resistance of magnesium in chloride solutions and on the corrosion of lead in the wet process for copper. The protective effect of aluminium coatings on iron was studied, and the corrosion of various bronzes by acids used in wet metallurgical processes. The production of lead-antimony alloys and the use of these and magnesium alloys in electrolytic processes is discussed.

GOPIUS, A. Ye., Eng.    Cand. Tech. Sci.

Dissertation:   "Investigation of the Processes of Electrolytic Deposition of Copper and the Technology of Calvanoplastic Fabrication of Thin-Walled Pipes."  Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, 3 Feb 47.

SO:  Vechernyaya Moskva, Feb, 1947 (Project #17836)

Gopius, A. Ye.

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KLARK, G.B.; GOPIUS, A.Ye.; SMIRNOVA, Yu.A.

Effect of climatic conditions on the corrosion cracking of brass.
Trudy Inst.fiz.khim. 8:110-129 '60.

(MIRA 14:4)

(Brass—Corrosion)   (Corrosion and anticorrosives—Climatic factors)

AUTHORS:    Gopius, A.Ye., Molchanova, V.P.

TITLE:     Investigating the impact corrosion of German silver condenser tubes
           and developing a more durable alloy

PERIODICAL:  Referativnyy zhurnal, Mashinostroyeniye, no. 18, 1961, 16, abstract
             18A121 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met.",
             1960, no. 18, 127 - 162)

TEXT:       It was found that the addition of 0.5% Fe to grade 70/30 German sil-
ver considerably increases its corrosion resistance. A further increase in the
Fe-content is less effective. If the alloy contains Mn along with Fe its cor-
rosion resistance improves somewhat, but the presence of Mn alone is not suffi-
cient. The optimum German silver composition is the following (in %): Ni + Co
29 - 33; Fe 1.0 - 1.5; Mn 0.5 - 1.0, the rest being Cu. The corrosion of Ger-
man silver tubes in running sea water is of an electrochemical nature. The pos-
sibility was confirmed of producing condenser tubes from these alloys by the or-
dinary technology used for German silver tubes. There are 10 references.
[Abstracter's note:  Complete translation]
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                                                              N. Sazonova

S/137/61/000/010/048/056
A006/A101

AUTHOR:      Gopius, A.Ye.

TITLE:       Alloys for sea-water pipelines

PERIODICAL:  Referativnyy zhurnal. Metallurgiya, no. 10, 1961, 50, abstract
             10I352 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met",
             1960, no. 18, 163 - 175)

TEXT:        Tests in sea water were made with pipes manufactured from different
alloys, such as Cu-Ni alloys, Al bronze, Al bronze with Fe admixture, Al-brass,
stannous brass, manganous bronze, silico-manganous bronze, Ni brass, tombac, Cu
(for comparison). Cu-Ni alloy pipes with 5% Ni, 1.0 - 1.4% Fe, and 0.3 - 0.8%
Mn are recommended for the use in pipelines of outboard sea water. There are 5
references.

                                                    Ye. Layner

[Abstracter's note:  Complete translation]

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GOPIUS, A.Ye.

Alloys for sea water pipelines.  Trudy Giprotsvetmetobrabotka no.18:
163-175 '60.                                      (MIRA 13:10)
        (Marine pipe fitting)        (Alloys--Corrosion)

GOPIUS, A.Ye.; NAUMOVA, N.N.

Developing measures to increase dezincification resistance of brass
strips for automobile radiator tubes.  Trudy Giprotsvetmetobrabotka
no.18:176-196 '60.
      (Brass—Metallography)           (MIRA 13:10)
                    (Corrosion and anticorrosives)

S/680/61/000/020/013/013
D205/D302

AUTHORS:   Gopius, A. Ye. and Vinogradova, N. B.

TITLE:   Copper alloys, not containing nickel, for sea-water pipelines

SOURCE:   Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut obrabotki tsvetnykh metallov. Sbornik nauchnykh trudov. no. 20, 1961. Metallovedeniye i obrabotka tsvetnykh metallov i splavov, 244-264

TEXT:   The copper-nickel alloy МНЖ 5-1 (MNZh 5-1) has a high corrosion resistance in sea-water, but production of pipes from this alloy is connected with great technological difficulties. It was found out earlier that copper-aluminum alloys with low Al and Fe contents have good corrosion-resistance properties. The aim of this work was to explore the possibility of producing a new Cu-Al alloy for sea-water pipelines, resistant to flow-corrosion and having better technological characteristics than MNZh 5-1 and therefore able to replace it. The specifications of the pipes and

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Copper alloys, not containing ...       S/680/61/000/020/013/013
                                        D205/D302

sheets made of the new alloy are to be complete workability by all
methods in hot and cold states, without embrittlement and degra-
dation of the mechanical properties, tensile strength $\langle 25$ kg/mm$^2$,
elongation $\langle 20\%$, and corrosion resistance to all kinds of corro-
sion in sea-water, not allowing the corrosion penetration to more
than 0.15 mm/year. 15 alloys were prepared and rolled to 1 mm
thickness, from which 25 x 70 mm specimens were cut out. The corro-
sive action of the sea-water was tested at 30 - 35ºC in a stirred
vessel with the peripheral velocity of the stirrer of 11 m/sec.
Weighing of the specimens after time intervals allowed calculation
of the weight loss (g/m$^2$/hr) and from it, of the penetration
(mm/year). Intercrystalline corrosion was studied microscopically.
Mechanical properties at high temperatures and their changes de-
pending on the degree of deformation and annealing temperature
were investigated and the welding properties of the alloys were
tested. It was found that, on the whole, the corrosion resistance
of the alloys was high (not less than the corrosion resistance of
the alloy MNZhMts 5-1, 2-0, 5). The welding and soldering of the

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Copper alloys, not containing ...     S/680/61/000/020/013/013
D205/D302

alloys is possible, the joint having the same resistance as the al-
loys. The mechanical tests have shown that the alloys are very
plastic and do not differ much from copper, the elongation in the
zone of maximum brittleness at 600°C being 13 - 27%. The best re-
sults were obtained at a maximum Fe content - 0.5% with a maximum
Al content of 0.6%. In such alloys the elongation will not decrease
below 20%. The optimum composition is 0.2 - 0.5% Fe, 0.4 - 0.6% Al,
the rest Cu. An industrial, experimental batch of tubes was prepa-
red from the alloys. When producing the batch it was established
that the tubes had pressing and drawing characteristics close to
that of copper tubes. The stresses applied were somewhat higher
and increased with increasing Fe and Al contents. Technological
tests of flattening, bending etc. performed according to GOST spe-
cifications were successful. There are 23 figures, 9 tables and 3
references: 1 Soviet-bloc and 2 non-Soviet-bloc. The reference to
the English-language publication reads as follows: Metal Industry
Handbook, p. 113-114, 1955.

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GOPIUS, A.Ye.; KATS, Yu.A.

Corrosion resistance of brass tubes in the sugar industry.
Trudy Giprotsvetmetobrabotka  no.20:265-279 '61.    (MIRA 15:2)
(Tubes—Corrosion)  (Sugar manufacture—Equipment and supplies)

GOPIUS, A.Ye.; KATS, Yu.A.; KHOKHRYAKOV, A.N.; KOSYAKOVA, V.I.

Testing automobile radiators made of arsenic brass.   Trudy
Giprotsvetmetobrabotka  no.20:280-286  '61.            (MIRA 15:2)
    (Automobile—Radiators)   (Brass—Testing)

GOPIUS, A.Ya., kand.tekhn.nauk; MINKIN, M.L., kand.tekhn.nauk; NAUMOVA,
    M.M.; KATS, Yu.A.; KHOKHRYAKOV, A.N.; KOSYAKOVA, V.I.

    Investigating materials for radiator pipes of automobile engines.
    Avt.prom. 28 no.5:15-17 My '62.                      (MIRA 15:5)

    1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
    obrabotki tsvetnykh metallov, Gosudarstvennyy soyuznyy ordena
    Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy
    i avtomotornyy institut i Gor'kovskiy avtozavod.
            (Automobiles—Radiators)  (Brass—Testing)

GOPIUS, A.Ye. [deceased]; RODIONOVA, L.L.; ZUYEV, S.S.

Investigating the corrosion resistance of welded brass pipe.
Trudy Giprotsvetmetobrabotka no.24:258-263 '65.

(MIRA 18:11)

L 38910-66     EWT(m)/EWP(t)/ETI     IJP(c)     JD/WB

ACC NR: AP6019563                    SOURCE CODE:  UR/0080/66/039/006/1249/1256

AUTHOR: Gopiyenko, V. G.; Gopiyenko, G. N.; Timofeyev, V. V.; Podushkin, D. I.

ORG: none

TITLE: Behavior of steels in melts containing titanium chlorides

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 6, 1966, 1249-1256

TOPIC TAGS: titanium, chloride  manganese, chromium, vanadium, molybdenum, nickel, corrosion, steel / steel-3, 1Kh18N9T steel, 2Kh13 steel

ABSTRACT: The article reports on a study of the behavior of certain steels (steel-3, 1Kh18N9T, 2Kh13) and metals (Mn, Cr, V, Mo, Ni) in melts containing $TiCl_2$, $TiCl_3$, and $TiCl_4$ in various proportions, carried out mainly for the purpose of obtaining melts with lower titanium chlorides, and also to determine the conditions of electrowinning and refining of titanium in melts.  In melts containing metallic Ti and $TiCl_2$, virtually no corrosion of steel-3 is observed; on the contrary, the formation of titanium coatings on the steel takes place.  Alloy steels (1Kh18N9T and 2Kh13) display a greater corrosion than does steel-3, owing to a selective dissolution of chromium out of the steel.  In melts containing $TiCl_3$, all the steels corrode and contaminate the melt with iron chlorides; a lesser corrosion is exhibited by steel-3 in this case as well.  The most pronounced corrosion occurs on all the steels under

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L 38910-66

ACC NR: AP6019563

the influence of $TiCl_4$ vapor. The corrosion resistance of the metals in all the investigated media decreases in the series Mo, Ni, Cr, V, Mn. It is shown that the interaction of the steels with titanium chlorides in the melt is associated with a simultaneous coarsening of the structure of the steels, which causes a decrease of their mechanical strength. From this point of view, steel-3 has the lowest strength, and it should therefore be used in the manufacture of stationary parts subjected to small loads. The behavior of steel-3 under an anodic potential was shown to depend strongly on the conditions of its contact with the more electronegative titanium metal. Orig. art. has: 6 figures and 3 tables.

SUB CODE: 07,11/ SUBM DATE: 18Nov64/ ORIG REF: 003/ OTH REF: 004

L 38910-66    EWT(m)/EWP(t)/ETI    IJP(c)    JD/WB

ACC NR: AP6019563                          SOURCE CODE:  UR/0080/66/039/006/1249/1256

AUTHOR: Gopiyenko, V. G.; Gopiyenko, G. N.; Timofeyev, V. V.; Podushkin, D. I.

ORG: none

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UDC:  546.82'131-143